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ABSTRACT

A typology of time-related concepts is put forth as a step toward the building of comprehensive theory in aging. The concepts derive from statistics (age, cohort, period effects), the theoretical writings of Sorokin (life course role sequences, durations and rates), the writings of Riley (on the synchronization of life course socialization and role allocation processes) and the life cycle planning literature (the use of time over the life course in the areas of education, work and leisure). The utility of the typology for resolving the "cohort analysis problem" (the confounding of age, cohort and period effects) in life planning research is outlined. (Author)

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Time as a Basic Concept for Theory Building in Social Gerontology*

by

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Introduction

Three basic conditions affecting all social systems have been identified (Moore, 1963): numbers -- the demographic dimensions of societies; space -- the ecological concentration and dispersion of human populations; and time -- the temporal boundaries of life and the sequential ordering of action. Demography and ecology have received a share of attention from social scientists to the near exclusion of temporal studies. Unlike "demography" and "ecology," temporal studies even lack a formal designating term. Ignored by social scientists generally, it is not surprising to find that time, as a conceptual tool for analysis, has not been applied systematically by social gerontological researchers. Nevertheless, this is an ironic historical development, in that "aging" is a basic temporal concept.

The Cohort Analysis Problem

The social gerontologist's failure to formalize the relationships between time and aging has not been without its methodological and theoretical implications. Recently, in the pages of The American Sociological Review, a three-year debate on the "futile quest" of statistical attempts to separate age, period and cohort time effects, culminated in the following "comment" by Norval Glenn (1976:900):

> The great bulk of the literature on cohort analysis is devoted to methods or attempts to separate statistically age, period and cohort effects. The effects are named for the kinds of influences which produce them; age effects are produced by influences associated with the aging process, period effects by influences associated with each period of time and cohort effects by influences associated with membership in each birth cohort. Regardless of how cohort data are examined, two kinds

> of effects are confounded with one another, age and cohort effects are confounded in cross-sectional data by age, age and period effects in intra-cohort trend data, and period and cohort effects in trend data for each age level . . . . . a strictly statistical solution to the age-period-cohort problem is not possible . . . . . mechanical, atheoretical cohort analysis depends at least as much on knowledge of theories of aging and of recent history as on technical expertise. (Emphasis mine.)

Were statisticians and sociologists, reading this and similar messages in the literature, to turn immediately to us gerontologists for expertise on "theories of aging," we would find ourselves in an embarassing position. Lacking comprehensive theory in social gerontology, we too are at a loss to make sense out of life course data which invariably confound the time effects of age (or maturation), period (or time of measurement) and cohort.

It is, therefore, the objective of this paper to set forth a typology of time-related concepts for heuristic purposes as a step toward the building of comprehensive theory in aging -- theory which would enable us to adequately analyze life course data and, consequently, develop a rational scheme for research-based planning and policy in aging. The typology attempts to serve this goal by offering a decision-making scheme for choosing among existing models of analysis for the unconfounding of time effects. This scheme, which moves toward an integration of research methodology with time-based theory in sociology and social gerontology,[1] will be discussed in the last section of this paper following a description of the typology and an example of its application to an aging-related problem -- the so-called retirement problem.

A Time Typology

A paucity of temporal concepts in social science and social gerontology exists despite the fact that as early as 1943 Sorokin, in his seminal work on socio-cultural time, introduced a host of concepts which, when modified, I believe show promise for systematic application in life course studies.[2] The temporal concepts are sequence, duration, rate, rhythm, recurrence, routine and synchronization. These concepts, in conjunction with the other temporal concepts of age, period and cohort, and my method for applying the concepts, constitute the typology I have developed. As outlined in Diagram 1 (to be distributed along with this paper at the conclusion of the session), the typology consists of three sections: a section on asynchronization in relation to socialization and social allocation processes, a section on the antecedents of asynchronization, and a section on the consequences of asynchronization.

The key integrating concept of the typology is synchronization. Social change is viewed partially as a function of the degree of synchronization or asynchronization[3] between socialization and allocation processes. (Socialization is defined as the learning of expectations and behaviors relevant to roles and positions acquired throughout the life span, and allocation as the distribution of roles and positions throughout social structure.[4]) Within the typology, asynchronization is defined in terms of a dichotomy: socialization-deficient and allocation-deficient asynchronization. The "retirement problem" (to the extent that it is a problem) may be offered as an example of the kind of

problem to which the typology may be applied. The retirement role is one the allocation of which is often mandatory. Its allocation, however, is not well synchronized with the socialization processes leading up to retirement, in that extensive and thorough preparation programs for retirement do not exist. This is a type of "socialization-deficient asynchronization" (-+). It should be clarified at this point that while the typology may facilitate the analysis of problems related to synchronization, or the correspondence of socialization and allocation processes, it is not per se a typology of the dynamic processes of synchronization.[5]

One section of the typology is entitled "Antecedents." The antecedents of synchronization/asynchronization may be understood in terms of historical (period or time-of-measurement effects), demographic (cohort effects) and maturational perspectives (age effects). Another section of the typology is entitled "Consequences." In understanding the consequences of synchronization/asynchronization, the typology employs the set of time concepts described by Sorokin as sequence, duration and rate (which I apply to and define in terms of individual role phenomena), and rhythm, recurrence and routine (which may be extended to the phenomena of organizational activity).

To extend the example on the "problem" of retirement, one may seek an understanding of retirement - asynchronization's antecedents in terms of demographic, historical, and maturational "explanations." For example, lack of societal preparation for retirement may be understood in terms of the baby boom cohort's exertion of increasing pressure for jobs (deficient allocation), thereby forcing mandatory retirement with little time for planning preparatory programs.

This is a cohort-based, or demographic, "explanation." Of course, there is an historical argument often put forth: rapid technological change has made and is making the knowledge possessed by older workers increasingly obsolete. Early, unwanted retirement may be seen as one consequence of this trend. It is very important to note, for reasons to be emphasized later, that perhaps maturational trends least plausibly explain early, unwanted retirement -- at least to the extent that physical and mental health remain adequate for employment well into advanced old age for many aging individuals.

The typology suggests that we also explore the possible consequences of retirement-related asynchronization. The cohort antecedent explanation for early retirement, which also helps explain later entry into the job market on the part of young people (extended adolescence), has consequences for the duration of life-course, work-related roles. The predicted trend is for the length of careers to be shortened. To the extent that technological change makes knowledge and skills increasingly obsolete (the historical antecedent explanation), the career line sequence of promotions is interrupted, with the very top statues being eliminated for many individuals. Rate of movement through the promotion sequence is, of course, slowed.

On the social structural level, change in the duration of the work cycle has consequences for the overall rhythm of social life, with significant social phenomena, e.g., the average age of entry into the job market, occurring at different times. Routines within the institutions of education, work and leisure must, as

a consequence, adjust. To the extent that a period of extended adolescence fosters adolescents' looking for temporary job opportunities before permanently entering the job market and to the extent that workers begin to prepare for early retirement, increasing their present levels of leisure time and education; periods of work, education and recreation are likely to recur throughout the life course rather than remain in their present fixed sequence of education, work and recreation-leisure (retirement).

I have applied this type of analysis to asynchronization problems related to roles less formally allocated and socialized than the retirement role, e.g., the leisure participant role among American elderly. Time does not permit me to continue with examples; however, I hope that I have demonstrated that application of the time concepts of the typology leads us to the organization of different and often complementary, explanations and understandings of aging phenomena. Of course, the basic principles of theory building must be applied to choose among them or state the need for additional explanations.

The Cohort Analysis Problem:

A Solution in Theory

By contributing to theory building in social gerontology, the time typology -- and this is the major point of this paper -- contributes to a solution of the problem of confounded age, cohort and history effects. As noted previously, even the most sophisticated analysis of variance procedures (Schaie, 1965) succeed in unconfounding only two of the three time effects for any given analysis. For example, Schaie's time sequential model offers a

net age effect, a net period effect, but leaves us to make the assumption that cohort differences are theoretically unimportant. Likewise, his cohort-sequential and cross-sequential models force the researcher to assume the unimportance of historical effects and age effects, respectively. When these models for data analysis are applied blindly, i.e., atheoretically, results are uninterpretable. The time typology, however, suggests that within any set of complementary or alternative explanations for a given asynchronization-related aging phenomenon, at least one explanation be put forth based on maturational age changes, one explanation be put forth based on cohort differentials and one explanation be put forth based on historical changes. An assessment of the theoretical plausibility of each explanation would then aid in the choice among time-sequential, cohort-sequential, or cross-sequential methodological strategies. In the brief example on retirement given previously, the maturational explanation seemed the least plausible. That datum alone would call for use of a cross-sequential model for analysis. At the level of antecedents, therefore, the typology fosters the integration of theory and methods in social gerontology.

Applications

The typology's section on "Consequences" facilitates its application to policy and planning in aging. Despite the connotations of terms used to describe the relationships among the concepts and variables in the time typology, the system implied in the typology allows for causal flow from the variables listed under "Consequences" to the variables listed under "Antecedents." It is the greater purpose of the model to guide the process of

explanation than to describe reality. Any theoretical model has policy relevance to the extent that the variables its concepts imply are manipulable. The typology's "Consequences" variables are manipulable. In the past, legislation has affected the duration of roles and positions, the sequence in which they are taken on, and the rate at which individuals are allowed to move through an entire sequence. In this regard, consider the impact of selective service legislation, mandatory education laws, and compulsory retirement laws on the temporal aspects of role performance.

Theoretical understanding of the mutual effects of one time typology variable on another, or one set of time typology variables on another, could guide legislation toward the goal of adjusting the temporal aspects of role performance in a manner which compensates for macro-sociological asynchronization. Does not mandatory retirement legislation presently attempt to do just that? Policy derived from informational analyses based on the time typology could, potentially, facilitate social and personal adjustment by the elderly to problems defined by asynchronization between allocation and socialization processes, e.g., retirement, widowhood and use of leisure time. As gerontologists, each of us has a role to play in what remains to be done in this kind of research. Each of us must make clear the consequences of his or her work for understanding and making distinctions among the time dimensions of aging. In this way we will set the foundation for the development of comprehensive, methods-integrated theory of the life course.

Diagram 1: Time Typology

Antecedents

Cohort (Age differences)

History (Period effects)

Maturation (Age changes)

Socialization/Allocation Synchronization

	Socialization	Allocation
Synchronization	+	+
Socialization-deficient Asynchronization	-	+
Allocation-deficient Asynchronization	+	-

Consequences

Individual (Roles)

Sequence

Duration

Rate

Individual and Organizational

Rhythm

Recurrence

Routine

Footnotes

[1] At least two other viable approaches exist, I believe, to the unconfounding of time effects in life course data. One approach would employ subjective measures of time. Those who struggle with problems in cohort analysis do so, in part, because the time effects are measured objectively and are, therefore, mathematically interdependent. Need age be defined chronologically? Need history or period be defined as time of measurement? Need cohort be defined as time of birth? The extent to which we are able to move away from these quantitative measures of time, is the extent to which we will be able to break the mathematical interdependence of the measures and, therefore, approach an analysis which unconfounds the three basic dimensions for analytical purposes. Mannheim (1929), for example, favors the use of subjective criteria for understanding the impact of cohort-related phenomena and prefers the term "generation" (the "experiences of common influences"). More important than calendar date as time of measurement (or period) is the need to know how historical events have impact on the individual, i.e., his subjective reactions. Focused interviewing would be one method that may be employed in this regard. Finally, chronological age in many analyses should be replaced by measures of biological, psychological or sociological age, each of which may be weakly correlated with chronological age and be much more appropriate theoretically.

A second approach would assume an interactive model for analysis. A given analysis of variance model will confound one time effect (age, cohort or period) with the other two. The same analysis offers a set of interaction effects. To the extent that it is theoretically meaningful to view one time effect as an interaction of the other two, it would seem valid to use the interaction effect of any two time factors as an unconfounded estimate of the third. For example, it would seem reasonable to view cohort effect as the interaction of history and age for many analyses.

[2] An important conceptualization of social time, distinct from chronological time, stems from Sorokin's understanding of sociocultural time (1943). Chronological time, or the time of classical mechanics, according to Sorokin, is continuous, infinitely divisible, uniformly flowing, purely quantitative, and devoid of any qualities. On the other hand, sociocultural time conceives and measures sociocultural phenomena - their duration, synchronicity, sequence, and change - in terms of other sociocultural phenomena taken as the point of reference. It does not flow evenly in the same group and in different societies. The moments of sociocultural time are uneven and contain eventful and critical moments as well as stretches of empty duration. Sociocultural time is not infinitely divisible. Sorokin notes

the example of renting a room: it may be rented for a month, a week, a day, but rarely by the hour or the minute. Sociocultural time is qualitative and its basic function is the synchronization and coordination of social activities in order to maintain continuity, orientation and give rhythm to social life.

[3] The temporal term "asynchronization" has been applied in the field of aging before, but not in the sense that it is being applied in this work. Recently (Seltzer, 1976), the term has been applied to describe time-disordered relationships which arise when an individual's various social spheres and role-sets are not temporally synchronized. In his seminal work on life course sociology, Cain (1964) had devised this definition and wrote of its promise for sociological inquiry in the field of aging. The term, asynchronization, as developed here, is quite different. It perhaps borrows an individual, role-focused element from Cain; however, this element is merged with the macrosociological interests of Sorokin, who viewed asynchronization as lack of coordination among social activities, to develop a social psychological concept of asynchronization as one which occurs between socialization and allocation processes.

[4] Despite Riley, Johnson and Foner's heuristic comments (1972) on the need for understanding the phasing of socialization and allocation processes, there has been no systematic attempt in social gerontology to understand the aging process as a complex temporal function of socialization and allocation process. The concepts of synchronization and asynchronization should prove to be helpful tools in this regard.

[5] Also employing the concepts of allocation and socialization, Irving Rosow (1976) has developed a typology for classifying normative expectations in relation to social roles and aging. Very helpful personal communication with Professor Rosow has clarified for me the distinction between the dynamic and static aspects of social allocation and socialization.

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